SEQUENCE LISTING

<110> Ruvkun, Gary
        Mak, Ho Yi

<120> Methods and Compositions Relating to Lipid Accumulation

<130> 00786/440007

<140> US 10/556,649
<141> 2005-11-10

<150> PCT/US2004/019186
<151> 2004-06-16

<150> US 60/570,374
<151> 2004-05-12

<150> US 60/550,257
<151> 2004-03-05

<150> US 60/483,199
<151> 2003-06-27

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<210> 4
<211> 175
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<213> Caenorhabditis elegans

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Ser Phe Arg Ser Ser Leu Ser Ser Val Thr Ala Pro Glu Leu Ala Ser
1   5   10   15

Val Ala Ile Lys Ala Ala Leu Glu Arg Gly Ala Val Lys Pro Ser Ser
            20   25   30

Ile Gln Glu Val Phe Leu Gly Gln Val Cys Gln Ala Asn Ala Gly Gln
        35   40   45

Ala Pro Ala Arg Gln Ala Ala Leu Gly Ala Gly Leu Asp Leu Ser Val
    50   55   60

Ala Val Thr Thr Val Asn Lys Val Cys Ser Ser Gly Leu Lys Ala Ile
65   70   75   80

Ile Leu Ala Ala Gln Gln Ile Gln Thr Gly His Gln Asp Phe Ala Ile
                85   90   95

Gly Gly Gly Met Glu Ser Met Ser Gln Val Pro Phe Tyr Val Gln Arg
            100   105   110

Gly Glu Ile Pro Tyr Gly Gly Phe Gln Val Ile Asp Gly Ile Val Lys
        115   120   125

Asp Gly Leu Thr Asp Ala Tyr Asp Lys Val His Met Gly Asn Cys Gly
    130   135   140

Glu Lys Thr Ser Lys Glu Met Gly Ile Thr Arg Lys Asp Gln Asp Glu
145   150   155   160

2

Tyr Ala Ile Asn Ser Tyr Lys Lys Ser Ala Lys Ala Val Glu Asn
                    165   .   170   175

<210> 5
<211> 173
<212> PRT
<213> Saccharomyces cerevisiae

<400> 5

Gly Phe Lys Gly Ala Phe Lys Asp Val Asn Thr Asp Tyr Leu Leu Tyr
1   5   10   15

Asn Phe Leu Asn Glu Phe Ile Gly Arg Phe Pro Glu Pro Leu Arg Ala
            20   25   30

Asp Leu Asn Leu Ile Glu Glu Val Ala Cys Gly Asn Val Leu Asn Val
            35   40   45

Gly Ala Gly Ala Thr Glu His Arg Ala Ala Cys Leu Ala Ser Gly Ile
        50   55   60

Pro Tyr Ser Thr Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly
65   70   75   80

Leu Thr Ala Val Asn Asp Ile Ala Asn Lys Ile Lys Val Gly Gln Ile
                85   90   95

Asp Ile Gly Leu Ala Leu Gly Val Glu Ser Met Thr Asn Asn Tyr Lys
            100   105   110

Asn Val Asn Pro Leu Gly Met Ile Ser Ser Glu Glu Leu Gln Lys Asn
            115   120   125

Arg Glu Ala Lys Lys Cys Leu Ile Pro Met Gly Ile Thr Asn Glu Asn
    130   135   140

Val Ala Ala Asn Phe Lys Ile Ser Arg Lys Asp Gln Asp Glu Phe Ala
145   150   155   160

Ala Asn Ser Tyr Gln Lys Ala Tyr Lys Ala Lys Asn Glu
                165   170

<210> 6
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3

<212> PRT
<213> Yarrowia lipolytica

<400> 6

Gly Gly Lys Gly Leu Phe Lys Asp Thr Ser Ser Ser Glu Leu Leu Ala
1   5   10   15

Ser Leu Leu Glu Gly Leu Val Lys Glu Ser Lys Ile Asp Pro Lys Leu
                20   25   30

Ile Gly Asp Val Val Cys Gly Asn Val Leu Ala Ala Gly Ala Gly Ala
            35   40   45

Thr Glu His Arg Ala Ala Cys Leu Val Ala Gly Ile Pro Glu Thr Val
        50   55   60

Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly Leu Met Ala Val
65   70   75   80

Asn Asp Val Ala Asn Lys Ile Arg Ala Gly Gln Ile Asp Ile Gly Ile
                85   90   95

Gly Cys Gly Val Glu Ser Met Ser Asn Gln Tyr Gly Pro Asn Ser Val
            100   105   110

Thr Pro Phe Ser Asn Lys Phe Gln Asn Asn Glu Glu Ala Lys Lys Cys
            115   120   125

Leu Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Ala Lys Tyr Asn
    130   135   140

Val Ser Arg Lys Ala Gln Asp Ala Phe Ala Ala Lys Ser Tyr Glu Lys
145   150   155   160

Ala Ala Ala Ala Gln Ala Ala
                165

<210> 7
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<213> Arabidopsis thaliana

<400> 7

Ala Arg Arg Gly Gly Phe Lys Asp Thr Leu Pro Asp Asp Leu Leu Ala

4

Ser Val Leu Lys Ala Val Val Glu Arg Thr Ser Leu Asp Pro Ser Glu
            20   25   30

Val Gly Asp Ile Val Val Gly Thr Val Ile Ala Pro Gly Ser Gln Arg
            35   40   45

Ala Met Glu Cys Arg Val Ala Ala Tyr Phe Ala Gly Phe Pro Asp Ser
            50   55   60

Val Pro Val Arg Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala
65   70   75   80

Val Ala Asp Val Ala Ala Ser Ile Arg Ala Gly Tyr Tyr Asp Ile Gly
            85   90   95

Ile Gly Ala Gly Val Glu Ser Met Ser Thr Asp His Ile Pro Gly Gly
            100   105   110

Gly Phe His Gly Ser Asn Pro Arg Ala Gln Asp Phe Pro Lys Ala Arg
            115   120   125

Asp Cys Leu Leu Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg
            130   135   140

Phe Gly Val Thr Arg Glu Glu Gln Asp Met Ala Ala Val Glu Ser His
145   150   155   160

Lys Arg Ala Ala Ala Ala Ile Ala Ser
                      165

<210>   8
<211>   175
<212>   PRT
<213>   Drosophila melanogaster

<400>   8

Ser Phe Gln Ser Gln Leu Ala Pro Leu Thr Ala Thr Gln Leu Gly Ala
1   5   10   15

Arg Ala Ile Glu Ala Ala Ile Glu Lys Ala Gly Ile Ala Lys Thr Asp
            20   25   30

```
Val Gln Glu Val Ile Met Gly Asn Val Val Ser Ala Gly Leu Gly Gln
        35                  40                  45

Ala Pro Ala Arg Gln Ala Ala Ile Phe Ala Gly Leu Pro Thr Asn Val
        50                  55                  60

Cys Cys Thr Thr Val Asn Lys Val Cys Ser Ser Gly Met Lys Ala Val
65                  70                  75                  80

Met Leu Gly Ala Gln Ser Leu Met Leu Gly Tyr Ala Asp Val Val Val
                85                  90                  95

Ala Gly Gly Met Glu Ser Met Ser Asn Val Pro Tyr Tyr Leu Lys Arg
            100                 105                 110

Gly Ala Thr Pro Tyr Gly Gly Val Asn Leu Thr Asp Gly Ile Val Phe
        115                 120                 125

Asp Gly Leu Trp Asp Val Tyr Asn Lys Phe His Met Gly Asn Cys Ala
        130                 135                 140

Glu Asn Thr Ala Lys Lys Leu Glu Ile Thr Arg Gln Gln Gln Asp Asp
145                 150                 155                 160

Phe Ala Ile Glu Ser Tyr Lys Arg Ser Ala Ala Ala Trp Ala Asn
                165                 170                 175


<210>  9
<211>  166
<212>  PRT
<213>  Rattus norvegicus

<400>  9

Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu Leu Ser
1               5                   10                  15

Ala Val Leu Thr Ala Val Leu Gln Asp Val Lys Leu Lys Pro Glu Cys
            20                  25                  30

Leu Gly Asp Ile Ser Val Gly Asn Val Leu Glu Pro Gly Ala Gly Ala
        35                  40                  45

Val Met Ala Arg Ile Ala Gln Phe Leu Ser Gly Ile Pro Glu Thr Val
```

6

```
Pro Leu Ser Ala Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val
65                    70                    75                    80


Ala Asn Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met
                  85                    90                    95


Ala Cys Gly Val Glu Ser Met Ser Leu Ser Asn Arg Gly Asn Pro Gly
                  100                   105                   110


Asn Ile Ser Ser Arg Leu Leu Glu Ser Asp Lys Ala Arg Asp Cys Leu
              115                   120                   125


Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile
          130                   135                   140


Ser Arg Gln Lys Gln Asp Ala Phe Ala Leu Ala Ser Gln Gln Lys Ala
145                   150                   155                   160


Ala Ser Ala Gln Ser Lys
                  165
```

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<210>  10
<211>  166
<212>  PRT
<213>  Mus musculus

<400>  10
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Ala Ser Arg Gly Gly Phe Lys Asn Thr Thr Pro Asp Glu Leu Leu Ser
1                   5                     10                    15


Ala Val Leu Thr Ala Val Leu Gln Asp Val Arg Leu Lys Pro Glu Gln
                  20                    25                    30


Leu Gly Asp Ile Ser Val Gly Asn Val Leu Glu Pro Gly Ala Gly Ala
              35                    40                    45


Val Met Ala Arg Ile Ala Gln Phe Leu Ser Gly Ile Pro Glu Thr Val
      50                    55                    60


Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val
65                    70                    75                    80
```

```
Ala Asn Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met
                85                  90                  95


Ala Cys Gly Val Glu Ser Met Ser Leu Ser Gly Met Gly Asn Pro Gly
            100                 105                 110


Asn Ile Ser Ser Arg Leu Leu Glu Ser Glu Lys Ala Arg Asp Cys Leu
        115                 120                 125


Thr Pro Met Gly Met Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile
        130                 135                 140


Ser Arg Gln Lys Gln Asp Asp Phe Ala Leu Ala Ser Gln Gln Lys Ala
145                 150                 155                 160


Ala Ser Ala Gln Ser Arg
                165


<210>   11
<211>   166
<212>   PRT
<213>   Homo sapiens

<400>   11

Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu Leu Ser
1               5                   10                  15


Ala Val Met Thr Ala Val Leu Lys Asp Val Asn Leu Arg Pro Glu Gln
                20                  25                  30


Leu Gly Asp Ile Cys Val Gly Asn Val Leu Gln Pro Gly Ala Gly Ala
            35                  40                  45


Ile Met Ala Arg Ile Ala Gln Phe Leu Ser Asp Ile Pro Glu Thr Val
        50                  55                  60


Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val
65                  70                  75                  80


Ala Ser Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met
                85                  90                  95


Ala Cys Gly Val Glu Ser Met Ser Leu Ala Asp Arg Gly Asn Pro Gly
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8

```
                   100                      105                      110


Asn Ile Thr Ser Arg Leu Met Glu Lys Glu Lys Ala Arg Asp Cys Leu
        115                  120                  125


Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile
        130                  135                  140


Ser Arg Glu Lys Gln Asp Thr Phe Ala Leu Ala Ser Gln Gln Lys Ala
145                      150                  155                  160


Ala Arg Ala Gln Ser Lys
                    165



<210>  12
<211>  145
<212>  PRT
<213>  Caenorhabditis elegans

<400>  12

Ala Ser Thr Leu Asn Asp Gly Ala Ala Ala Val Ile Val Ala Ser Gln
1                   5                   10                  15


Glu Ala Val Ser Glu Gln Ser Leu Lys Pro Leu Ala Arg Ile Leu Ala
            20                  25                  30


Tyr Gly Asp Ala Ala Thr His Pro Leu Asp Phe Ala Val Ala Pro Thr
            35                  40                  45


Leu Met Phe Pro Lys Ile Leu Glu Arg Ala Gly Val Lys Gln Ser Asp
        50                  55                  60


Val Ala Gln Trp Glu Val Asn Glu Ala Phe Ser Cys Val Pro Leu Ala
65                  70                  75                  80


Phe Ile Lys Lys Leu Gly Val Asp Pro Ser Leu Val Asn Pro His Gly
                85                  90                  95


Gly Ala Val Ser Ile Gly His Pro Ile Gly Met Ser Gly Ala Arg Leu
            100                 105                 110


Ile Thr His Leu Val His Thr Leu Lys Ser Gly Gln Ile Gly Val Ala
        115                 120                 125
```

9

Ala Ile Cys Asn Gly Gly Gly Gly Ser Ser Gly Met Val Ile Gln Lys
    130   135   140

Leu
145

<210> 13
<211> 145
<212> PRT
<213> Saccharomyces cerevisiae

<400> 13

Ala Ser Gln Val Ser Asp Gly Val Ala Gly Val Leu Leu Ala Arg Arg
1   5   10   15

Ser Val Ala Asn Gln Leu Asn Leu Pro Val Leu Gly Arg Tyr Ile Asp
            20   25   30

Phe Gln Thr Val Gly Val Pro Pro Glu Ile Met Gly Val Gly Pro Ala
            35   40   45

Tyr Ala Ile Pro Lys Val Leu Glu Ala Thr Gly Leu Gln Val Gln Asp
    50   55   60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ala Gln Ala Leu Tyr
65   70   75   80

Cys Ile His Lys Leu Gly Ile Asp Leu Asn Lys Val Asn Pro Arg Gly
                85   90   95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
                100   105   110

Val Ala Thr Ile Leu Arg Glu Leu Lys Lys Asp Gln Ile Gly Val Val
            115   120   125

Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Ile Phe Ile Lys
    130   135   140

Glu
145

<210> 14

Ala Ile Cys Asn Gly Gly Gly Gly Ser Ser Gly Met Val Ile Gln Lys
    130   135   140

Leu
145

<210> 13
<211> 145
<212> PRT
<213> Saccharomyces cerevisiae

<400> 13

Ala Ser Gln Val Ser Asp Gly Val Ala Gly Val Leu Leu Ala Arg Arg
1   5   10   15

Ser Val Ala Asn Gln Leu Asn Leu Pro Val Leu Gly Arg Tyr Ile Asp
            20   25   30

Phe Gln Thr Val Gly Val Pro Pro Glu Ile Met Gly Val Gly Pro Ala
            35   40   45

Tyr Ala Ile Pro Lys Val Leu Glu Ala Thr Gly Leu Gln Val Gln Asp
    50   55   60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ala Gln Ala Leu Tyr
65   70   75   80

Cys Ile His Lys Leu Gly Ile Asp Leu Asn Lys Val Asn Pro Arg Gly
                85   90   95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
                100   105   110

Val Ala Thr Ile Leu Arg Glu Leu Lys Lys Asp Gln Ile Gly Val Val
            115   120   125

Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Ile Phe Ile Lys
    130   135   140

Glu
145

<210> 14

<211> 147
<212> PRT
<213> Yarrowia lipolytica

<400> 14

Ala Ser Gln Ile Ser Asp Gly Ala Gly Ala Val Leu Leu Met Arg Arg
1   5   10   15

Ser Val Ala Glu Lys Leu Gly Gln Pro Ile Leu Ala Lys Phe Val His
            20   25   30

Cys Lys Thr Val Gly Val Pro Pro Glu Leu Met Gly Ile Gly Pro Ala
            35   40   45

Tyr Ala Ile Pro Ala Val Leu Glu Asp Leu Gly Leu Thr Val Asn Asp
        50   55   60

Val Asp Val Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Leu Phe
65   70   75   80

Ser Ile Gln His Cys Gly Ile Asp Glu Ser Lys Val Asn Pro Arg Gly
                85   90   95

Gly Ala Ile Ala Ile Gly His Pro Leu Gly Ala Thr Gly Ala Arg Gln
            100   105   110

Phe Ala Thr Leu Leu Ser Glu Leu Lys Glu Ser Gly Lys Lys Val Gly
            115   120   125

Val Thr Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ser Leu Val
    130   135   140

Val Ala Glu
145

<210> 15
<211> 166
<212> PRT
<213> Arabidopsis thaliana

<400> 15

Ala Ser Gln Ile Ser Asp Gly Ala Gly Ala Val Leu Leu Met Lys Arg
1   5   10   15

11

Ser Leu Ala Met Lys Lys Gly Leu Pro Ile Leu Gly Val Phe Arg Ser
          20   25   30

Phe Ala Val Thr Gly Val Glu Pro Ser Val Met Gly Ile Gly Pro Ala
          35   40   45

Val Ala Ile Pro Ala Ala Thr Lys Leu Ala Gly Leu Asn Val Ser Asp
          50   55   60

Ile Asp Leu Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Tyr Val Tyr
65   70   75   80

Ser Cys Lys Lys Leu Glu Leu Asp Met Glu Lys Val Asn Val Asn Gly
          85   90   95

Gly Ala Ile Ala Ile Gly His Pro Leu Gly Ala Thr Gly Ala Arg Cys
          100   105   110

Val Ala Thr Leu Leu His Glu Met Lys Arg Arg Gly Lys Asp Cys Arg
          115   120   125

Phe Gly Val Ile Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala
          130   135   140

Val Phe Glu Arg Gly Asp Ser Val Asp Asn Leu Ser Asn Ala Arg Val
145   150   155   160

Ala Asn Gly Asp Ser His
                165

<210>   16
<211>   145
<212>   PRT
<213>   Drosophila melanogaster

<400>   16

Ala Ser Thr Leu Asn Asp Gly Gly Ala Ala Val Val Leu Met Ser Ala
1   5   10   15

Glu Ala Ala Gln Lys Ala Gly Ile Lys Pro Leu Ala Arg Ile Val Ala
          20   25   30

Phe Gln Asp Ala Glu Thr Asp Pro Ile Asp Phe Pro Ile Ala Pro Ala
          35   40   45

12

Leu Ala Ile Pro Lys Leu Leu Lys Arg Ala Gly Val Arg Lys Glu Asp
   50   55   60

Val Ala Met Trp Glu Val Asn Glu Ala Phe Ser Leu Val Val Leu Ala
65   70   75   80

Asn Ile Lys Lys Leu Asp Val Asp Pro Ala Lys Val Asn Val His Gly
             85   90   95

Gly Ala Val Ser Ile Gly His Pro Ile Gly Met Ser Gly Ala Arg Leu
             100   105   110

Val Ala His Leu Ser His Ser Leu Lys Lys Gly Glu Leu Gly Cys Ala
         115   120   125

Ser Ile Cys Asn Gly Gly Gly Gly Ala Ser Ser Ile Leu Ile Glu Lys
   130   135   140

Leu
145

<210> 17
<211> 150
<212> PRT
<213> Rattus norvegicus

<400> 17

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Val Leu Leu Ala Arg Arg
1   5   10   15

Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser
             20   25   30

Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly Pro Ala
         35   40   45

Tyr Ala Ile Pro Ala Ala Leu Gln Lys Ala Gly Leu Thr Val Asn Asp
   50   55   60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Leu Tyr
65   70   75   80

Cys Val Glu Lys Leu Gly Ile Pro Ala Glu Lys Val Asn Pro Leu Gly
                85   90   95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
            100   105   110

Val Val Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Thr Arg Ala Tyr
            115   120   125

Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val
        130   135   140

Phe Glu Tyr Pro Gly Asn
145   150

<210> 18
<211> 150
<212> PRT
<213> Mus musculus

<400> 18

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Val Leu Leu Ala Arg Arg
1   5   10   15

Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser
            20   25   30

Tyr Ala Val Val Gly Val Pro Pro Asp Val Met Gly Ile Gly Pro Ala
            35   40   45

Tyr Ala Ile Pro Ala Ala Leu Gln Lys Ala Gly Leu Thr Val Asn Asp
        50   55   60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Val Tyr
65   70   75   80

Cys Val Glu Lys Leu Gly Ile Pro Ala Glu Lys Val Asn Pro Leu Gly
                85   90   95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
            100   105   110

Val Val Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Arg Arg Ala Tyr
            115   120   125

14

```
Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val
    130                 135                 140


Phe Glu Tyr Pro Gly Asn
145                 150


<210>   19
<211>   150
<212>   PRT
<213>   Homo sapiens


<400>   19

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Ile Leu Leu Ala Arg Arg
1               5                   10                  15


Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser
            20                  25                  30


Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly Pro Ala
            35                  40                  45


Tyr Ala Ile Pro Val Ala Leu Gln Lys Ala Gly Leu Thr Val Ser Asp
    50                  55                  60


Val Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Ala Tyr
65                  70                  75                  80


Cys Val Glu Lys Leu Arg Leu Pro Pro Glu Lys Val Asn Pro Leu Gly
                85                  90                  95


Gly Ala Val Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
                100                 105                 110


Val Ile Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Lys Arg Ala Tyr
            115                 120                 125


Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val
    130                 135                 140


Phe Glu Tyr Pro Gly Asn
145                 150
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<210> 20
<211> 407
<212> PRT
<213> Caenorhabditis elegans

<400> 20

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Met Leu Ser Ser Ser Gly His Ala Ile Arg Arg Gly Ile Thr Thr Ser
1               5                   10                  15


Ala Ala Leu Ser Asn Lys His Ala Phe Ile Val Gly Ala Ala Arg Thr
            20                  25                  30


Pro Ile Gly Ser Phe Arg Ser Ser Leu Ser Ser Val Thr Ala Pro Glu
            35                  40                  45


Leu Ala Ser Val Ala Ile Lys Ala Ala Leu Glu Arg Gly Ala Val Lys
        50                  55                  60


Pro Ser Ser Ile Gln Glu Val Phe Leu Gly Gln Val Cys Gln Ala Asn
65                  70                  75                  80


Ala Gly Gln Ala Pro Ala Arg Gln Ala Ala Leu Gly Ala Gly Leu Asp
                85                  90                  95


Leu Ser Val Ala Val Thr Thr Val Asn Lys Val Cys Ser Ser Gly Leu
            100                 105                 110


Lys Ala Ile Ile Leu Ala Ala Gln Gln Ile Gln Thr Gly His Gln Asp
        115                 120                 125


Phe Ala Ile Gly Gly Gly Met Glu Ser Met Ser Gln Val Pro Phe Tyr
    130                 135                 140


Val Gln Arg Gly Glu Ile Pro Tyr Gly Gly Phe Gln Val Ile Asp Gly
145                 150                 155                 160


Ile Val Lys Asp Gly Leu Thr Asp Ala Tyr Asp Lys Val His Met Gly
                165                 170                 175


Asn Cys Gly Glu Lys Thr Ser Lys Glu Met Gly Ile Thr Arg Lys Asp
                180                 185                 190


Gln Asp Glu Tyr Ala Ile Asn Ser Tyr Lys Lys Ser Ala Lys Ala Trp
            195                 200                 205
```

16

```
Glu Asn Gly Asn Ile Gly Pro Glu Val Val Pro Val Asn Val Lys Ser
    210                 215             220

Lys Lys Gly Val Thr Ile Val Asp Lys Asp Glu Glu Phe Thr Lys Val
225                 230             235                         240

Asn Phe Asp Lys Phe Thr Ser Leu Arg Thr Val Phe Gln Lys Asp Gly
                245             250             255

Thr Ile Thr Ala Ala Asn Ala Ser Thr Leu Asn Asp Gly Ala Ala Ala
            260             265             270

Val Ile Val Ala Ser Gln Glu Ala Val Ser Glu Gln Ser Leu Lys Pro
        275             280             285

Leu Ala Arg Ile Leu Ala Tyr Gly Asp Ala Ala Thr His Pro Leu Asp
    290             295             300

Phe Ala Val Ala Pro Thr Leu Met Phe Pro Lys Ile Leu Glu Arg Ala
305             310             315                         320

Gly Val Lys Gln Ser Asp Val Ala Gln Trp Glu Val Asn Glu Ala Phe
            325             330             335

Ser Cys Val Pro Leu Ala Phe Ile Lys Lys Leu Gly Val Asp Pro Ser
            340             345             350

Leu Val Asn Pro His Gly Gly Ala Val Ser Ile Gly His Pro Ile Gly
        355             360             365

Met Ser Gly Ala Arg Leu Ile Thr His Leu Val His Thr Leu Lys Ser
    370             375             380

Gly Gln Ile Gly Val Ala Ala Ile Cys Asn Gly Gly Gly Gly Ser Ser
385             390             395                         400

Gly Met Val Ile Gln Lys Leu
                405


<210>  21
<211>  417
<212>  PRT
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<213> Saccharomyces cerevisiae

<400> 21

Met Ser Gln Arg Leu Gln Ser Ile Lys Asp His Leu Val Glu Ser Ala
1   5   10   15

Met Gly Lys Gly Glu Ser Lys Arg Lys Asn Ser Leu Leu Glu Lys Arg
            20   25   30

Pro Glu Asp Val Val Ile Val Ala Ala Asn Arg Ser Ala Ile Gly Lys
            35   40   45

Gly Phe Lys Gly Ala Phe Lys Asp Val Asn Thr Asp Tyr Leu Leu Tyr
    50   55   60

Asn Phe Leu Asn Glu Phe Ile Gly Arg Phe Pro Glu Pro Leu Arg Ala
65   70   75   80

Asp Leu Asn Leu Ile Glu Glu Val Ala Cys Gly Asn Val Leu Asn Val
                85   90   95

Gly Ala Gly Ala Thr Glu His Arg Ala Ala Cys Leu Ala Ser Gly Ile
            100   105   110

Pro Tyr Ser Thr Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly
            115   120   125

Leu Thr Ala Val Asn Asp Ile Ala Asn Lys Ile Lys Val Gly Gln Ile
    130   135   140

Asp Ile Gly Leu Ala Leu Gly Val Glu Ser Met Thr Asn Asn Tyr Lys
145   150   155   160

Asn Val Asn Pro Leu Gly Met Ile Ser Ser Glu Glu Leu Gln Lys Asn
            165   170   175

Arg Glu Ala Lys Lys Cys Leu Ile Pro Met Gly Ile Thr Asn Glu Asn
            180   185   190

Val Ala Ala Asn Phe Lys Ile Ser Arg Lys Asp Gln Asp Glu Phe Ala
            195   200   205

Ala Asn Ser Tyr Gln Lys Ala Tyr Lys Ala Lys Asn Glu Gly Leu Phe

18

Glu Asp Glu Ile Leu Pro Ile Lys Leu Pro Asp Gly Ser Ile Cys Gln
225   230   235   240

Ser Asp Glu Gly Pro Arg Pro Asn Val Thr Ala Glu Ser Leu Ser Ser
                245   250   255

Ile Arg Pro Ala Phe Ile Lys Asp Arg Gly Thr Thr Thr Ala Gly Asn
                260   265   270

Ala Ser Gln Val Ser Asp Gly Val Ala Gly Val Leu Leu Ala Arg Arg
                275   280   285

Ser Val Ala Asn Gln Leu Asn Leu Pro Val Leu Gly Arg Tyr Ile Asp
    290   295   300

Phe Gln Thr Val Gly Val Pro Pro Glu Ile Met Gly Val Gly Pro Ala
305   310   315   320

Tyr Ala Ile Pro Lys Val Leu Glu Ala Thr Gly Leu Gln Val Gln Asp
                325   330   335

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ala Gln Ala Leu Tyr
                340   345   350

Cys Ile His Lys Leu Gly Ile Asp Leu Asn Lys Val Asn Pro Arg Gly
            355   360   365

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln
    370   375   380

Val Ala Thr Ile Leu Arg Glu Leu Lys Lys Asp Gln Ile Gly Val Val
385   390   395   400

Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Ile Phe Ile Lys
                405   410   415

Glu

<210> 22
<211> 424

19

<212> PRT
<213> Homo sapiens

<400> 22

Met Gln Arg Leu Gln Val Val Leu Gly His Leu Arg Gly Pro Ala Asp
1   5   10   15

Ser Gly Trp Met Pro Gln Ala Ala Pro Cys Leu Ser Gly Ala Pro Gln
            20   25   30

Ala Ser Ala Ala Asp Val Val Val His Gly Arg Arg Thr Ala Ile
        35   40   45

Cys Arg Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu
        50   55   60

Leu Ser Ala Val Met Thr Ala Val Leu Lys Asp Val Asn Leu Arg Pro
65   70   75   80

Glu Gln Leu Gly Asp Ile Cys Val Gly Asn Val Leu Gln Pro Gly Ala
                85   90   95

Gly Ala Ile Met Ala Arg Ile Ala Gln Phe Leu Ser Asp Ile Pro Glu
            100   105   110

Thr Val Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln
            115   120   125

Ala Val Ala Ser Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile
        130   135   140

Gly Met Ala Cys Gly Val Glu Ser Met Ser Leu Ala Asp Arg Gly Asn
145   150   155   160

Pro Gly Asn Ile Thr Ser Arg Leu Met Glu Lys Glu Lys Ala Arg Asp
                165   170   175

Cys Leu Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe
            180   185   190

Gly Ile Ser Arg Glu Lys Gln Asp Thr Phe Ala Leu Ala Ser Gln Gln
        195   200   205

20

Lys Ala Ala Arg Ala Gln Ser Lys Gly Cys Phe Gln Ala Glu Ile Val
    210   215   220

Pro Val Thr Thr Thr Val His Asp Asp Lys Gly Thr Lys Arg Ser Ile
225   230   235   240

Thr Val Thr Gln Asp Glu Gly Ile Arg Pro Ser Thr Thr Met Glu Gly
            245   250   255

Leu Ala Lys Leu Lys Pro Ala Phe Lys Lys Asp Gly Ser Thr Thr Ala
            260   265   270

Gly Asn Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Ile Leu Leu Ala
        275   280   285

Arg Arg Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu
    290   295   300

Arg Ser Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly
305   310   315   320

Pro Ala Tyr Ala Ile Pro Val Ala Leu Gln Lys Ala Gly Leu Thr Val
            325   330   335

Ser Asp Val Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala
            340   345   350

Ala Tyr Cys Val Glu Lys Leu Arg Leu Pro Pro Glu Lys Val Asn Pro
        355   360   365

Leu Gly Gly Ala Val Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala
    370   375   380

Arg Gln Val Ile Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Lys Arg
385   390   395   400

Ala Tyr Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala
            405   410   415

Ala Val Phe Glu Tyr Pro Gly Asn
            420

<210> 23

21

<211> 593
<212> PRT
<213> Homo sapiens

<400> 23

```
Met Ala Ala Ala Ser Ser Ser Asp Ser Asp Ala Cys Gly Ala Glu Ser
1               5               10              15

Asn Glu Ala Asn Ser Lys Trp Leu Asp Ala His Tyr Asp Pro Met Ala
            20              25              30

Asn Ile His Thr Phe Ser Ala Cys Leu Ala Leu Ala Asp Leu His Gly
        35              40              45

Asp Gly Glu Tyr Lys Leu Val Val Gly Asp Leu Gly Pro Gly Gly Gln
    50              55              60

Gln Pro Arg Leu Lys Val Leu Lys Gly Pro Leu Val Met Thr Glu Ser
65              70              75              80

Pro Leu Pro Ala Leu Pro Ala Ala Ala Thr Phe Leu Met Glu Gln
            85              90              95

His Glu Pro Arg Thr Pro Ala Leu Ala Leu Ala Ser Gly Pro Cys Val
            100             105             110

Tyr Val Tyr Lys Asn Leu Arg Pro Tyr Phe Lys Phe Ser Leu Pro Gln
        115             120             125

Leu Pro Pro Asn Pro Leu Glu Gln Asp Leu Trp Asn Gln Ala Lys Glu
    130             135             140

Asp Arg Ile Asp Pro Leu Thr Leu Lys Glu Met Leu Glu Ser Ile Arg
145             150             155             160

Glu Thr Ala Glu Glu Pro Leu Ser Ile Gln Ser Leu Arg Phe Leu Gln
            165             170             175

Leu Glu Leu Ser Glu Met Glu Ala Phe Val Asn Gln His Lys Ser Asn
        180             185             190

Ser Ile Lys Arg Gln Thr Val Ile Thr Thr Met Thr Thr Leu Lys Lys
        195             200             205
```

```
Asn Leu Ala Asp Glu Asp Ala Val Ser Cys Leu Val Leu Gly Thr Glu
    210             215             220

Asn Lys Glu Leu Leu Val Leu Asp Pro Glu Ala Phe Thr Ile Leu Ala
225             230             235                     240

Lys Met Ser Leu Pro Ser Val Pro Val Phe Leu Glu Val Ser Gly Gln
                245             250             255

Phe Asp Val Glu Phe Arg Leu Ala Ala Ala Cys Arg Asn Gly Asn Ile
            260             265             270

Tyr Ile Leu Arg Arg Asp Ser Lys His Pro Lys Tyr Cys Ile Glu Leu
        275             280             285

Ser Ala Gln Pro Val Gly Leu Ile Arg Val His Lys Val Leu Val Val
    290             295             300

Gly Ser Thr Gln Asp Ser Leu His Gly Phe Thr His Lys Gly Lys Lys
305             310             315                     320

Leu Trp Thr Val Gln Met Pro Ala Ala Ile Leu Thr Met Asn Leu Leu
            325             330             335

Glu Gln His Ser Arg Gly Leu Gln Ala Val Met Ala Gly Leu Ala Asn
            340             345             350

Gly Glu Val Arg Ile Tyr Arg Asp Lys Ala Leu Leu Asn Val Ile His
        355             360             365

Thr Pro Asp Ala Val Thr Ser Leu Cys Phe Gly Arg Tyr Gly Arg Glu
    370             375             380

Asp Asn Thr Leu Ile Met Thr Thr Arg Gly Gly Gly Leu Ile Ile Lys
385             390             395                     400

Ile Leu Lys Arg Thr Ala Val Phe Val Glu Gly Gly Ser Glu Val Gly
            405             410             415

Pro Pro Pro Ala Gln Ala Met Lys Leu Asn Val Pro Arg Lys Thr Arg
            420             425             430
```

23

Leu Tyr Val Asp Gln Thr Leu Arg Glu Arg Glu Ala Gly Thr Ala Met
        435   440   445

His Arg Ala Phe Gln Thr Asp Leu Tyr Leu Leu Arg Leu Arg Ala Ala
        450   455   460

Arg Ala Tyr Leu Gln Ala Leu Glu Ser Ser Leu Ser Pro Leu Ser Thr
465   470   475   480

Thr Ala Arg Glu Pro Leu Lys Leu His Ala Val Val Gln Gly Leu Gly
            485   490   495

Pro Thr Phe Lys Leu Thr Leu His Leu Gln Asn Thr Ser Thr Thr Arg
        500   505   510

Pro Val Leu Gly Leu Leu Val Cys Phe Leu Tyr Asn Glu Ala Leu Tyr
        515   520   525

Ser Leu Pro Arg Ala Phe Phe Lys Val Pro Leu Leu Val Pro Gly Leu
        530   535   540

Asn Tyr Pro Leu Glu Thr Phe Val Glu Ser Leu Ser Asn Lys Gly Ile
545   550   555   560

Ser Asp Ile Ile Lys Val Leu Val Leu Arg Glu Gly Gln Ser Ala Pro
            565   570   575

Leu Leu Ser Ala His Val Asn Met Pro Gly Ser Glu Gly Leu Ala Ala
        580   585   590

Ala

<210> 24
<211> 576
<212> PRT
<213> Caenorhabditis elegans

<400> 24

Met Ala Lys Pro Val Asn Val Asn Gln Ser Lys Trp Thr Val Pro Val
1   5   10   15

Leu Leu Lys Glu Cys Glu Ile Tyr Cys Pro Ser Thr Cys Val Ala Phe
        20   25   30

Gly Pro Ile Leu Ser Asp Asn Asp Ser Lys Leu Ile Ile Ala His Gly
    35   40   45

Gly His Arg Gly Val Asn Met Lys Leu Lys Val Phe Gln Gln Leu Glu
    50   55   60

Gln Leu Ser Glu Ser Ser Leu Ala Asp Met Pro Thr Ala Leu Val His
65   70   75   80

Phe Ile Asn Asp Leu Ser Ser Ile Pro Ser Ile Ala Val Ala Ala Gly
            85   90   95

Pro Ser Leu Leu Ile Tyr Lys Asn Leu Lys Pro Phe Tyr Lys Phe Thr
            100   105   110

Val Pro Ser Ser Ala Ile Asn Pro Thr Glu Ser Glu Ala Trp Lys Ala
            115   120   125

Val Val Asn Lys Lys Ile Asn Gly Asp Thr Leu Leu Thr Val Leu Lys
    130   135   140

Arg Leu Glu Asp Asp Val Ala Phe Ser Lys Leu Thr Pro Ile Ser Gln
145   150   155   160

Thr Tyr Leu Arg Ala Asp Lys Glu Thr Gln Val Val Leu Val Glu His
            165   170   175

Tyr Gly Thr Lys Ile Ala Asn Ser Ala Thr Ile Thr Cys Ile Ala Lys
            180   185   190

Leu Thr Lys Ser Thr Ala Glu Pro Leu Asp Ile Leu Val Ile Gly Thr
            195   200   205

Glu His Cys Glu Ile Phe Leu Ile Asp Ser Gln Ala Phe Thr Ile Leu
    210   215   220

Glu Thr Ile Lys Ile Gly Ser Val Pro Val Asn Ile Cys Ala Tyr Gly
225   230   235   240

Thr Tyr Asp Val Asp Tyr Arg Leu Phe Val Gln Thr Arg Ala Ser Leu
            245   250   255

```
Ile Phe Cys Met Lys Arg Gly Glu Ala Asp Tyr Gln Pro Ile Val Ile
        260             265             270


Ser Gln Ser Met Ile Thr Ser Met Val Leu Val Asn Lys Met Ile Val
        275             280             285


Tyr Thr Thr Val Glu Asn Leu Ile His Phe Ala Ser Phe Arg Gly Lys
        290             295             300


Lys Met Asn Thr Val Lys Cys Pro Ser Lys Ile Lys Met Leu Glu Pro
305             310             315             320


Phe Ile Tyr Pro Leu Lys Gln Leu Ala Ala Val Ile Ala Val Phe Asp
                325             330             335


Lys Glu Ile Arg Met Tyr Asn Glu His Tyr Leu Leu Asp Thr Val Gln
            340             345             350


Tyr Glu Lys Pro Leu Ala Trp Val Lys Tyr Gly Cys Tyr Gly Arg Glu
        355             360             365


Asp Ser Thr Leu Val Val Ala Phe Lys Asp Gly Ser Ile Ala Ile Gln
    370             375             380


Ile Phe Arg Arg Lys Ala Asn Phe Asp Thr Lys Leu Asp Tyr Asn Gln
385             390             395             400


Val Pro Gln Ala His Ala Leu Lys Leu Gln Ile Pro Lys Lys Thr Lys
            405             410             415


Val Phe Ile Asp Leu Thr Gln Arg Glu Val Gln Leu Gly Asn Arg Ile
            420             425             430


His Lys Val Tyr Gln Lys Asn Leu Phe Asp Val Lys Tyr Arg Leu Ala
        435             440             445


Ala Ser Tyr Leu Glu Leu Thr Ser Ser Ala Ser Ala Thr Val Ser Thr
    450             455             460


Thr Thr Val Leu Pro Val Glu Ile Ser Val Asp Ile His Gly Phe Gly
465             470             475             480
```

26

```
Pro Thr Phe Arg Met Thr Ile His Leu Leu Ser Ser Ser Lys Gln Asn
            485                 490                 495

Leu Tyr Asp Met His Leu Ser Ile Ile Ser Asp Pro Glu Leu Tyr Asp
            500                 505                 510

Phe Asp Thr Pro Leu Ile Pro Val His Leu Leu Ala Ser Gly Gln Ser
            515                 520                 525

Tyr Ser Phe Thr Thr Leu Leu Tyr Cys Lys Asp Pro Glu Lys Ala Ala
    530                 535                 540

Asn Cys Asp Val Arg Ala Leu Leu Val His Ala Lys Arg Ala Thr Pro
545                 550                 555                 560

Ile Val Thr Ala Val Ile Lys Met Pro Phe Ser Glu Phe Pro Leu Asp
            565                 570                 575


<210>  25
<211>  5
<212>  PRT
<213>  ARTIFICIAL SEQUENCE

<220>
<223>  synthetic

<400>  25

Lys Lys Ile Ala Val
1                 5


<210>  26
<211>  5
<212>  PRT
<213>  ARTIFICIAL SEQUENCE

<220>
<223>  synthetic

<400>  26

Lys Asn Ile Ala Val
1                 5


<210>  27
<211>  15
<212>  DNA
<213>  ARTIFICIAL SEQUENCE
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<220>
<223>  synthetic

<400>  27
aaaaagattg ccgtt                                                    15


<210>  28
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<212>  DNA
<213>  ARTIFICIAL SEQUENCE

<220>
<223>  synthetic

<400>  28
aaaaatattg ccgtt                                                    15


<210>  29
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<213>  ARTIFICIAL SEQUENCE

<220>
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<221>  MISC_FEATURE
<222>  (1)..(1)
<223>  Xaa is Lys or Arg

<220>
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<222>  (2)..(2)
<223>  Xaa is Lys or Arg

<220>
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<222>  (3)..(3)
<223>  Xaa is any amino acid

<220>
<221>  MISC_FEATURE
<222>  (4)..(4)
<223>  Xaa is Ser or Thr

<220>
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<222>  (5)..(5)
<223>  Xaa is any amino acid

<400>  29

Xaa Xaa Xaa Xaa Xaa
1               5
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<210>  30
<211>  5
<212>  PRT
<213>  ARTIFICIAL SEQUENCE

<220>
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<221>  MISC_FEATURE
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<223>  Xaa is Lys or Arg

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<223>  Xaa is Lys or Arg

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<222>  (3)..(3)
<223>  Xaa is any amino acid

<220>
<221>  MISC_FEATURE
<222>  (5)..(5)
<223>  Xaa is any amino acid

<400>  30

Xaa Xaa Xaa Ala Xaa
1               5


<210>  31
<211>  5
<212>  PRT
<213>  ARTIFICIAL SEQUENCE

<220>
<223>  synthetic

<400>  31

Lys Lys Ile Ala Val
1               5


<210>  32
<211>  5
<212>  PRT
<213>  ARTIFICIAL SEQUENCE

<220>
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<223> synthetic

<400> 32

Lys Asn Ile Ala Val
1   5

<210> 33
<211> 686
<212> PRT
<213> HOMO SAPIENS

<400> 33

Met Gly Thr Leu Arg Asp Leu Gln Tyr Ala Leu Gln Glu Lys Ile Glu
1   5   10   15

Glu Leu Arg Gln Arg Asp Ala Leu Ile Asp Glu Leu Glu Leu Glu Leu
            20   25   30

Asp Gln Lys Asp Glu Leu Ile Gln Lys Leu Gln Asn Glu Leu Asp Lys
            35   40   45

Tyr Arg Ser Val Ile Arg Pro Ala Thr Gln Gln Ala Gln Lys Gln Ser
        50   55   60

Ala Ser Thr Leu Gln Gly Glu Pro Arg Thr Lys Arg Gln Ala Ile Ser
65   70   75   80

Ala Glu Pro Thr Ala Phe Asp Ile Gln Asp Leu Ser His Val Thr Leu
                85   90   95

Pro Phe Tyr Pro Lys Ser Pro Gln Ser Lys Asp Leu Ile Lys Glu Ala
            100   105   110

Ile Leu Asp Asn Asp Phe Met Lys Asn Leu Glu Leu Ser Gln Ile Gln
            115   120   125

Glu Ile Val Asp Cys Met Tyr Pro Val Glu Tyr Gly Lys Asp Ser Cys
            130   135   140

Ile Ile Lys Glu Gly Asp Val Gly Ser Leu Val Tyr Val Met Glu Asp
145   150   155   160

Gly Lys Val Glu Val Thr Lys Glu Gly Val Lys Leu Cys Thr Met Gly
                165   170   175

```
Pro Gly Lys Val Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg
        180                     185             190

Thr Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp
        195                     200             205

Arg Gln Cys Phe Gln Thr Ile Met Met Arg Thr Gly Leu Ile Lys His
        210                     215             220

Thr Glu Tyr Met Glu Phe Leu Lys Ser Val Pro Thr Phe Gln Ser Leu
225                     230             235                 240

Pro Glu Glu Ile Leu Ser Lys Leu Ala Asp Val Leu Glu Glu Thr His
                245                 250             255

Tyr Glu Asn Gly Glu Tyr Ile Ile Arg Gln Gly Ala Arg Gly Asp Thr
            260                 265             270

Phe Phe Ile Ile Ser Lys Gly Thr Val Asn Val Thr Arg Glu Asp Ser
        275                 280                 285

Pro Ser Glu Asp Pro Val Phe Leu Arg Thr Leu Gly Lys Gly Asp Trp
    290                 295                 300

Phe Gly Glu Lys Ala Leu Gln Gly Glu Asp Val Arg Thr Ala Asn Val
305                 310                 315                 320

Ile Ala Ala Glu Ala Val Thr Cys Leu Val Ile Asp Arg Asp Ser Phe
                325                 330                 335

Lys His Leu Ile Gly Gly Leu Asp Asp Val Ser Asn Lys Ala Tyr Glu
            340                 345             350

Asp Ala Glu Ala Lys Ala Lys Tyr Glu Ala Glu Ala Ala Phe Phe Ala
        355                 360             365

Asn Leu Lys Leu Ser Asp Phe Asn Ile Ile Asp Thr Leu Gly Val Gly
    370                 375                 380

Gly Phe Gly Arg Val Glu Leu Val Gln Leu Lys Ser Glu Glu Ser Lys
385                 390                 395             400
```

                                      31

Thr Phe Ala Met Lys Ile Leu Lys Lys Arg His Ile Val Asp Thr Arg
            405   410   415

Gln Gln Glu His Ile Arg Ser Glu Lys Gln Ile Met Gln Gly Ala His
            420   425   430

Ser Asp Phe Ile Val Arg Leu Tyr Arg Thr Phe Lys Asp Ser Lys Tyr
            435   440   445

Leu Tyr Met Leu Met Glu Ala Cys Leu Gly Gly Glu Leu Trp Thr Ile
    450   455   460

Leu Arg Asp Arg Gly Ser Phe Glu Asp Ser Thr Thr Arg Phe Tyr Thr
465   470   475   480

Ala Cys Val Val Glu Ala Phe Ala Tyr Leu His Ser Lys Gly Ile Ile
                485   490   495

Tyr Arg Asp Leu Lys Pro Glu Asn Leu Ile Leu Asp His Arg Gly Tyr
            500   505   510

Ala Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Ile Gly Phe Gly Lys
            515   520   525

Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ala Pro Glu Ile
            530   535   540

Ile Leu Asn Lys Gly His Asp Ile Ser Ala Asp Tyr Trp Ser Leu Gly
545   550   555   560

Ile Leu Met Tyr Glu Leu Leu Thr Gly Ser Pro Pro Phe Ser Gly Pro
            565   570   575

Asp Pro Met Lys Thr Tyr Asn Ile Ile Leu Arg Gly Ile Asp Met Ile
            580   585   590

Glu Phe Pro Lys Lys Ile Ala Lys Asn Ala Ala Asn Leu Ile Lys Lys
            595   600   605

Leu Cys Arg Asp Asn Pro Ser Glu Arg Leu Gly Asn Leu Lys Asn Gly
    610   615   620

32

```
Val Lys Asp Ile Gln Lys His Lys Trp Phe Glu Gly Phe Asn Trp Glu
625             630             635             640


Gly Leu Arg Lys Gly Thr Leu Thr Pro Pro Ile Ile Pro Ser Val Ala
            645             650             655


Ser Pro Thr Asp Thr Ser Asn Phe Asp Ser Phe Pro Glu Asp Asn Asp
            660             665             670


Glu Pro Pro Pro Asp Asp Asn Ser Gly Trp Asp Ile Asp Phe
        675             680             685
```

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<210>   34
<211>   737
<212>   PRT
<213>   Caenorhabditis elegans

<400>   34
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```
Met Lys Gln Gln Pro Pro Arg Ile Tyr Val Gln Val Gly Thr Arg Thr
1               5               10              15


Phe Glu Ala His Glu Leu Gln Lys Leu Ile Pro Gln Leu Glu Glu Ala
            20              25              30


Ile Ser Arg Lys Asp Ala Gln Leu Arg Gln Gln Gln Thr Ile Val Glu
        35              40              45


Gly His Ile Lys Arg Ile Ser Glu Leu Glu Gly Glu Val Thr Thr Leu
        50              55              60


Gln Arg Glu Cys Asp Lys Leu Arg Ser Val Leu Glu Gln Lys Ala Gln
65              70              75              80


Ser Ala Ala Ser Pro Gly Gly Gln Pro Pro Ser Pro Ser Pro Arg Thr
            85              90              95


Asp Gln Leu Gly Asn Asp Leu Gln Gln Lys Ala Val Leu Pro Ala Asp
            100             105             110


Gly Val Gln Arg Ala Lys Lys Ile Ala Val Ser Ala Glu Pro Thr Asn
            115             120             125


Phe Glu Asn Lys Pro Ala Thr Leu Gln His Tyr Asn Lys Thr Val Gly
        130             135             140
```

33

```
Ala Lys Gln Met Ile Arg Asp Ala Val Gln Lys Asn Asp Phe Leu Lys
145             150             155             160


Gln Leu Ala Lys Glu Gln Ile Ile Glu Leu Val Asn Cys Met Tyr Glu
            165             170             175


Met Arg Ala Arg Ala Gly Gln Trp Val Ile Gln Glu Gly Glu Pro Gly
            180             185             190


Asp Arg Leu Phe Val Val Ala Glu Gly Glu Leu Gln Val Ser Arg Glu
            195             200             205


Gly Ala Leu Leu Gly Lys Met Arg Ala Gly Thr Val Met Gly Glu Leu
    210             215             220


Ala Ile Leu Tyr Asn Cys Thr Arg Thr Ala Ser Val Gln Ala Leu Thr
225             230             235             240


Asp Val Gln Leu Trp Val Leu Asp Arg Ser Val Phe Gln Met Ile Thr
            245             250             255


Gln Arg Leu Gly Met Glu Arg His Ser Gln Leu Met Asn Phe Leu Thr
            260             265             270


Lys Val Ser Ile Phe Gln Asn Leu Ser Glu Asp Arg Ile Ser Lys Met
            275             280             285


Ala Asp Val Met Asp Gln Asp Tyr Tyr Asp Gly Gly His Tyr Ile Ile
    290             295             300


Arg Gln Gly Glu Lys Gly Asp Ala Phe Phe Val Ile Asn Ser Gly Gln
305             310             315             320


Val Lys Val Thr Gln Gln Ile Glu Gly Glu Thr Glu Pro Arg Glu Ile
            325             330             335


Arg Val Leu Asn Gln Gly Asp Phe Phe Gly Glu Arg Ala Leu Leu Gly
            340             345             350


Glu Glu Val Arg Thr Ala Asn Ile Ile Ala Gln Ala Pro Gly Val Glu
            355             360             365
```

34

Val Leu Thr Leu Asp Arg Glu Ser Phe Gly Lys Leu Ile Gly Asp Leu
    370   375   380

Glu Ser Leu Lys Lys Asp Tyr Gly Asp Lys Glu Arg Leu Ala Gln Val
385   390   395   400

Val Arg Glu Pro Pro Ser Pro Val Lys Ile Val Asp Asp Phe Arg Glu
                405   410   415

Glu Phe Ala Gln Val Thr Leu Lys Asn Val Lys Arg Leu Ala Thr Leu
                420   425   430

Gly Val Gly Gly Phe Gly Arg Val Glu Leu Val Cys Val Asn Gly Asp
        435   440   445

Lys Ala Lys Thr Phe Ala Leu Lys Ala Leu Lys Lys Lys His Ile Val
    450   455   460

Asp Thr Arg Gln Gln Glu His Ile Phe Ala Glu Arg Asn Ile Met Met
465   470   475   480

Glu Thr Ser Thr Asp Trp Ile Val Lys Leu Tyr Lys Thr Phe Arg Asp
                485   490   495

Gln Lys Phe Val Tyr Met Leu Leu Glu Val Cys Leu Gly Gly Glu Leu
                500   505   510

Trp Thr Thr Leu Arg Asp Arg Gly His Phe Asp Asp Tyr Thr Ala Arg
        515   520   525

Phe Tyr Val Ala Cys Val Leu Glu Gly Leu Glu Tyr Leu His Arg Lys
        530   535   540

Asn Ile Val Tyr Arg Asp Leu Lys Pro Glu Asn Cys Leu Leu Ala Asn
545   550   555   560

Thr Gly Tyr Leu Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Leu Ala
                565   570   575

Ser Gly Arg Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ser
            580   585   590

Pro Glu Ile Ile Leu Asn Lys Gly His Asp Gln Ala Ala Asp Tyr Trp
        595   600   605

Ala Leu Gly Ile Tyr Ile Cys Glu Leu Met Leu Gly Arg Pro Pro Phe
    610   615   620

Gln Ala Ser Asp Pro Met Lys Thr Tyr Thr Leu Ile Leu Lys Gly Val
625   630   635   640

Asp Ala Leu Glu Ile Pro Asn Arg Arg Ile Gly Lys Thr Ala Thr Ala
                  645   650   655

Leu Val Lys Lys Leu Cys Arg Asp Asn Pro Gly Glu Arg Leu Gly Ser
              660   665   670

Gly Ser Gly Gly Val Asn Asp Ile Arg Lys His Arg Trp Phe Met Gly
        675   680   685

Phe Asp Trp Glu Gly Leu Arg Ser Arg Thr Leu Lys Pro Pro Ile Leu
    690   695   700

Pro Lys Val Ser Asn Pro Ala Asp Val Thr Asn Phe Asp Asn Tyr Pro
705   710   715   720

Pro Asp Asn Asp Val Pro Pro Asp Glu Phe Ser Gly Trp Asp Glu Gly
                  725   730   735

Phe